Amendments to the Claims:

Please cancel claims 17-20 as being drawn to a non-elected invention and please amend claims 1, 2, and 4-16. Please cancel claims 21-24.

This listing of claims replaces all prior versions, and listings, of claims in the application.

Listing of claims:

1. (currently amended) An optical transmission system for compensating for transmission loss, comprising:

a transmitting apparatus for serializing a plurality of n-bit channel data, where n is a natural number, received from an external source, in response to a predetermined clock signal, converting the serialized channel data into a first current signal and converting the predetermined clock signal into a second current signal, the magnitudes ~~magnitude~~ of the first current signal and second current signal being modulated ~~which changes~~ in accordance with corresponding first and second transmission loss compensation signals decoded from an error detection signal received from a remote receiving apparatus, ~~signal~~, and outputting first and second optical signals having respective first and second optical output power levels ~~power~~ corresponding to the respective magnitudes ~~magnitude~~ of the first and second current signals ~~signal~~;

[[a]] first and second optical fibers ~~fiber~~ for transmitting the first and second optical signals;

a receiving apparatus for recovering the n-bit channel data and the predetermined clock signal from the first and second optical signals received through the first and second optical fibers ~~fiber~~, detecting first and second transmission loss in each of the first and second optical signals as a result of their transmission and reception to generate first and second transmission loss signals ~~generated when the optical signals are transmitted and received~~, encoding the first and second transmission loss signals to generate an encoded transmission loss signal, and optically converting the encoded transmission loss signal~~, and outputting the optically converted transmission loss~~ as the error detection signal; and

a second optical fiber for transmitting the ~~optical converted~~ error detection signal to the

transmitting apparatus.

2. (currently amended) The optical transmission system of claim 1, wherein the transmitting apparatus comprises:

a first phase locked loop (PLL) for generating a clock signal synchronized with the predetermined clock signal as a first synchronized clock signal ~~and outputting the first synchronized clock signal as an actual clock signal for data transmission~~;

a parallel/serial data converter for receiving [[a]] the plurality of n-bit channel data in response to the first synchronized clock signal[[,]] and serializing the n-bit channel data in response to the first synchronized clock signal~~, and outputting~~ to provide the serialized n-bit channel data;

a receiver optical diode for receiving and converting the error detection signal transmitted from the second optical fiber into [[a]] an error detection current signal ~~and outputting the current signal~~;

an error compensating optical driver for converting the serialized n-bit channel data and the first synchronized clock signal into the first and second current signals respectively, converting the error detection current signal into a digital error compensation signal, decoding the first and second transmission loss compensation signals from the digital error compensation signal, ~~changing~~ modulating the magnitudes of the first and second ~~converted~~ current signals in accordance with the corresponding first and second transmission loss compensation signals ~~current signal output by the receiving optical diode~~, and outputting the modulated first and second current signals as first and second driving signals; and

first and second a ~~plurality of~~ transmitting optical diodes for outputting the first and second optical signals having optical output powers ~~power~~ corresponding to the first and second driving signals.

3. (original) The optical transmission system of claim 2, wherein the parallel/serial data converter comprises:

a data latch for receiving the n-bit channel data and segmenting and latching the n-bit

channel data by N (N is a natural number) bits in response to first through m (m is a natural number) th latch clock signals; and

a data serializer for performing a logic operation on the n-bit channel data latched by the data latch, first through nth non-overlapping clock signals, and inverted first through nth non-overlapping clock signals and outputting the logic operation result as the serialized channel data,

wherein the first through nth non-overlapping clock signals are generated by the phase locked loop (PLL) and have a predetermined offset so as not to overlap each other.

4. (currently amended) The optical transmission system of claim 2, wherein the error compensating optical driver comprises:

an optical receiver for receiving the error detection current signal [[,]] and converting the received error detection current signal into ~~a voltage signal, converting the level of the converted voltage signal, and outputting~~ a digitized error compensation signal;

a transmission loss compensator for recovering first and second transmission loss data signals corresponding to the transmission loss occurring in the transmission of the first and second optical signals ~~in each channel~~ from the error compensation signal in response to the first synchronized clock signal, analog converting the recovered first and second transmission loss data signals~~, and generating analog converted transmission loss data as~~ to provide the first and second transmission loss compensation signals;

~~an optical output controller for generating optical output control signals in response to the transmission loss compensation signals;~~ and

a plurality of optical drivers for converting the serialized n-bit channel data and the first synchronized clock signal into the first and second current signals, ~~changing~~ modulating the magnitudes of the converted first and second current signals in response to the corresponding first and second transmission loss compensation ~~optical output control~~ signals, and outputting the modulated first and second current signals as the first and second driving signals.

5. (currently amended) The optical transmission system of claim 1, wherein the receiving apparatus comprises:

first and second ~~a plurality of~~ optical receiver diodes for receiving optical signals transmitted through the first and second optical fibers ~~fiber~~ and converting the received optical signals into received current signals;

an error detection optical receiver for converting the received current signals converted by the first and second ~~plurality of~~ optical receiver diodes ~~for reception~~ into voltage signals, digitizing the voltage signals into digital signals, and providing the digital signals as received ~~outputting digitized signals as~~ serial n-bit channel data and a recovered clock signal, detecting transmission loss in the received signals ~~of each channel~~ from the voltage signals as the first and second transmission loss signals, encoding the first and second transmission loss signals as the encoded transmission loss signal, and converting the encoded transmission loss signal into an encoded transmission loss current signal~~, and outputting the current~~;

a second PLL for generating a second synchronized clock signal synchronized with the recovered clock signal ~~and outputting the second synchronized clock signal as an actual clock signal for receiving data~~;

a data recovery unit for recovering the received recovered serial n-bit channel data to n-bit parallel data in response to the second synchronized clock signal; and

an optical feedback diode for transmission for optically transmitting the error detection signal to the transmitting apparatus via the third optical fiber in response to the encoded transmission loss current signal ~~converting a signal encoded and converted into current by the error compensation optical receiver into an optical signal~~.

6. (currently amended) The optical transmission system of claim 5, wherein the error detection optical receiver comprises:

first and second ~~a plurality of~~ optical receivers for converting the current signals converted by the plurality of first and second optical receiver diodes ~~for reception~~ into voltage signals, outputting the voltage signals, digitizing the voltage signals into the digital signals, and providing the digital signals as the received ~~outputting the digitalized voltage signals as the recovered~~ serial n-bit channel data and the recovered clock signal;

a transmission loss detector for detecting the transmission loss in the received signals ~~of~~

~~each channel~~ from the voltage signals, and encoding the first and second transmission loss signals ~~detected in each channel~~ in response to the second synchronized clock signal~~, and outputting the encoded transmission loss as transmission loss data~~; and

an optical driver for receiving the encoded transmission loss signal ~~data~~, converting the ~~received~~ encoded transmission loss signal ~~data~~ into the encoded transmission loss current signal ~~a direct current (DC) signal~~, and ~~outputting~~ providing the encoded transmission loss current signal ~~converted DC signal~~ to the optical feedback diode for transmission.

7. (currently amended) An optical transmission system for compensating for transmission loss, comprising:

a transmitting apparatus for serializing a plurality of n-bit channel data received from an external source, in response to a predetermined clock signal, converting the serialized channel data into a first current signal and converting the predetermined clock signal into a second current signal, the magnitudes ~~magnitude~~ of the first current signal and second current signal being modulated ~~which changes~~ in accordance with corresponding first and second transmission loss compensation signals decoded from an error detection signal received from a remote receiving apparatus, ~~signal~~, and outputting first and second optical signals having respective first and second optical output power levels ~~power~~ corresponding to the respective magnitudes ~~magnitude~~ of the first and second current signals ~~signal~~;

[[a]] first and second optical fibers ~~fiber~~ for transmitting the first and second optical signals;

a receiving apparatus for recovering the n-bit channel data and the predetermined clock signal from the first and second optical signals received [[by]] through the first and second optical fibers ~~fiber~~, detecting first and second ~~and outputting~~ transmission loss in each of the first and second optical signals as a result of their transmission and reception to generate first and second transmission loss signals, and ~~generated when the optical signals are transmitted and received~~ encoding the first and second transmission loss signals to generate an encoded transmission loss signal as the error detection signal; and

an electrical transmission line for transmitting the error detection signal to the

transmitting apparatus.

8. (currently amended) The optical transmission system of claim 7, wherein the transmitting apparatus comprises:

a first phase locked loop (PLL) for generating a clock signal synchronized with the predetermined clock signal as a first synchronized clock signal ~~and outputting the first synchronized clock signal as an actual clock signal for data transmission~~;

a parallel/serial data converter for receiving [[a]] the plurality of n-bit channel data ~~from the outside~~ in response to the first synchronized clock signal[[,]] and serializing the n-bit channel data in response to the first synchronized clock signal~~, and outputting~~ to provide the serialized n-bit channel data;

an error compensating optical driver for converting the serialized n-bit channel data and the first synchronized clock signal into the first and second current signals respectively, converting the error detection current signal into a digital error compensation signal, decoding the first and second transmission loss compensation signals from the digital error compensation signal, ~~changing~~ modulating the magnitudes of the first and second ~~converted~~ current signals in accordance with the corresponding first and second transmission loss compensation signals ~~error detection signal transmitted from the electrical transmission line~~, and outputting the modulated first and second current signals as first and second driving signals; and

first and second a ~~plurality of~~ transmitting optical diodes for outputting the first and second optical signals having optical output powers ~~power~~ corresponding to the first and second driving signals.

9. (currently amended) The optical transmission system of claim 8, wherein the error compensating optical driver comprises:

a transmission loss compensator for recovering first and second transmission loss data signals corresponding to the transmission loss occurring in the transmission of the first and second optical signals ~~of each channel~~ from the error detection signal in response to the first synchronized clock signal, analog converting the recovered first and second transmission loss

data signals~~, into analog form and generating analog converted transmission loss data as~~ to provide the first and second transmission loss compensation signals;

~~an optical output controller for generating optical output control signals in response to the transmission loss compensation signals;~~ and

a plurality of optical drivers for converting the serialized n-bit channel data and the first synchronized clock signal into the first and second current signals, ~~changing~~ modulating the magnitudes of the converted first and second current signals in response to the first and second transmission loss compensation ~~optical output control~~ signals, and outputting the modulated first and second current signals as the first and second driving signals.

10. (currently amended) The optical transmission system of claim 7, wherein the receiving apparatus comprises:

first and second ~~a plurality of receiving~~ optical receiver diodes for receiving optical signals transmitted through the first and second optical fibers ~~fiber~~ and converting the received optical signals into received current signals;

an error detection optical receiver for converting the received current signals converted by the first and second ~~plurality of receiving~~ optical receiver diodes into voltage signals, digitizing the voltage signals into digital signals, and providing the digital signals as received, ~~and outputting the digitized voltage signals as recovered~~ serial n-bit channel data and a recovered clock signal, detecting transmission loss in the received signals ~~each channel~~ from the ~~converted~~ voltage signals, encoding the first and second transmission loss signals as the encoded transmission loss signal, and outputting the encoded transmission loss as the error detection signal;

a second PLL for generating a second synchronized clock signal synchronized with the recovered clock signal ~~and outputting the second synchronized clock signal as an actual clock signal for receiving data~~; and

a data recovery unit for recovering the received recovered serial n-bit channel data to n-bit parallel data in response to the second synchronized clock signal;

11. (currently amended) The optical transmission system of claim 10, wherein the error detection optical receiver comprises:

first and second ~~a plurality of~~ optical receivers for converting the current signals converted by the plurality of first and second ~~receiving~~ optical receiver diodes ~~for reception~~ into voltage signals, outputting the voltage signals, digitizing the voltage signals into the digital signals, and providing the digital signals as the received ~~outputting the digitized voltage signals as the recovered~~ serial n-bit channel data and the recovered clock signal;

a transmission loss detector for detecting the transmission loss in the received signals ~~of each channel~~ from the voltage signals, and encoding the first and second transmission loss signals ~~detected in each channel~~ in response to the second synchronized clock signal, ~~and outputting the encoded transmission loss as transmission loss data~~.

12. (currently amended) A transmitting apparatus for receiving transmission loss data detected by an external receiving apparatus through a first optical fiber and transmitting a plurality of channel data to the receiving apparatus through a second optical fiber, comprising:

a PLL for generating a clock signal synchronized with a predetermined clock signal received from an external source ~~and outputting the synchronized clock signal as an actual clock signal for transmitting data~~;

a parallel/serial data converter for receiving a plurality of n-bit channel data from an external source in response to the synchronized clock signal and serializing the n-bit channel data in response to the synchronized clock signal;

[[an]] a receiver optical diode for ~~reception for~~ receiving and converting an error detection signal transmitted from the first optical fiber into [[a]] an error detection current signal ~~and outputting the current signal~~;

an error compensating optical driver for converting the n-bit channel data serialized by the parallel/serial data converter and the synchronized clock signal into first and second current signals respectively, converting the error detection current signal into a digital error compensation signal, decoding first and second transmission loss compensation signals from the

digital error compensation signal, modulating ~~changing~~ the magnitudes of the converted first and second current signals in accordance with the corresponding first and second transmission loss compensation signals ~~current signal converted by the optical diode for reception~~, and outputting the modulated first and second current signals as first and second driving signals; and

first and second ~~a plurality of~~ transmitting optical diodes ~~for transmission~~ for outputting first and second optical signals having optical output powers ~~power~~ corresponding to the first and second driving signals.

13. (currently amended) The optical transmission system of claim 12, wherein the error compensating optical driver comprises:

an optical receiver for receiving the error detection current signal [[,]] and converting the received error detection current signal into ~~a voltage signal, converting the level of the converted voltage signal, and outputting~~ a digitized error compensation signal;

a transmission loss compensator for recovering first and second transmission loss data signals corresponding to the transmission loss occurring in the transmission of the first and second optical signals ~~of each channel~~ from the error compensation signal in response to the synchronized clock signal, analog converting the recovered first and second transmission loss data signals~~, and generating the analog converted transmission loss data as~~ to provide the first and second transmission loss compensation ~~compensating~~ signals;

~~an optical output controller for generating optical output control signals in response to the transmission loss compensation signals;~~ and

a plurality of optical drivers for converting the serialized n-bit channel data and the first synchronized clock signal into the first and second current signals, ~~changing~~ modulating the magnitudes of the converted first and second current signals in response to the corresponding first and second transmission loss compensation ~~optical output control~~ signals, and outputting the modulated first and second current signals as the first and second driving signals.

14. (currently amended) The transmitting apparatus of claim 13, wherein the error compensating optical driver further comprises an optical output controller that ~~generates the~~

~~optical output control signals so as to change~~ changes ~~the~~ modulation currents ~~current~~ of the first and second driving signals in response to the first and second transmission loss compensation ~~compensating~~ signals.

15. (currently amended) The transmitting apparatus of claim 13, wherein the error compensating optical driver further comprises an optical output controller that ~~generates the optical output control signals so as to change~~ changes ~~the~~ bias currents ~~current~~ of the first and second driving signals in response to the first and second transmission loss compensation ~~compensating~~ signals.

16. (currently amended) The transmitting apparatus of claim 13, wherein the transmission loss compensator comprises:

a decoder for decoding the first and second transmission loss compensation signals from the digital ~~error compensation signal in response to the synchronized clock signal and outputting the decoding result as~~ to recover the transmission loss data of each corresponding first and second transmission channel; and

~~an analog-to-digital~~ a digital-to-analog converter for receiving the first and second transmission loss compensation signals data of each channel, converting the transmission loss data into first and second ~~an~~ analog signals ~~signal~~, and ~~generating~~ providing the first and second ~~the~~ analog signals ~~signal~~ as the first and transmission loss compensation signals ~~for compensating for transmission loss of each channel~~.

17-20. (canceled)

21-24. (canceled).